



PATENT
Attorney Reference Number 245-68071-01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Paul et al.**Application No.** 10/803,502**Filed:** March 17, 2004**Confirmation No.** 5691

For: METHOD FOR MAKING DEVICES
HAVING INTERMETALLIC
STRUCTURES AND INTERMETALLIC
DEVICES MADE THEREBY

Examiner: Unknown**Art Unit:** 3729**Attorney Reference No.** 245-68071-01

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Attorney or Agent
for Applicant(s)

Date Mailed October 5, 2005

TRANSMITTAL LETTER

Enclosed for filing in the application referenced above are the following:

- Information Disclosure Statement
 - Form 1449 and references cited thereon
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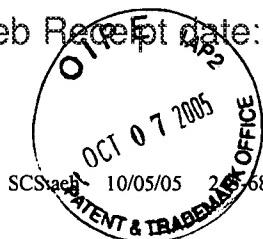
Respectfully submitted,

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cc: Docketing



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INFORMATION DISCLOSURE STATEMENT
PURSUANT TO 37 C.F.R. § 1.97(b)(3)

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Listed on the accompanying form PTO-1449 and enclosed herewith are several English-language documents. Applicants respectfully request that these documents be listed as references cited on the issued patent.

Copies of United States patents and United States published patent applications do not have to be provided to the Patent Office (37 C.F.R. 1.98(a)(2)(ii)). Copies of unpublished U.S. applications do not have to be provided, as long as the application is available on PAIR, as this requirement of 37 C.F.R. § 1.98(a)(2)(iii) has been waived by the United States Patent and Trademark Office pursuant to the Official Gazette Notice on October 19, 2004 (1287 OG 163). Applicants will provide copies of such patents or applications upon request.

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PATENT

Applicants filed this Information Disclosure Statement ("IDS") before the mailing date of a first Office action on the merits. As a result, no fee should be required to file this IDS. However, if the Patent Office determines that a fee is required for Applicants to file this IDS, please charge any such fees, or credit overpayment, to Deposit Account No. 02-4550. A **duplicate copy** of this Information Disclosure Statement is enclosed.

The filing of this IDS shall not be construed to be an admission that the information cited in the statement is, or is considered to be, prior art or otherwise material to patentability as defined in 37 C.F.R. §1.56.

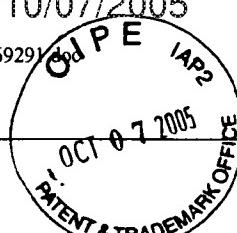
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**INFORMATION DISCLOSURE STATEMENT
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First Named Inventor	Paul
Art Unit	3729
Examiner Name	Unknown

Examiner's Initials*	Cite No. (optional)	OTHER DOCUMENTS
/N.D./		Alm, "Diffusion Bonding - Methods and Applications: Part I - Terminology," Systems Group of TRW Inc., <i>Adhesives Age</i> , pp. 28-32, July 1970.
		Alman et al., "Intermetallic Sheets Synthesized from Elemental Ti, Al, and Nb Foils," <i>Metallurgical and Materials Transactions A</i> , Volume 26A, pp. 2759-2762, October 1995.
		Alman et al., "Fabrication, Structure and Properties of Aluminum-Aluminide Layered Composites," <i>Materials Research Society Symp. Proc.</i> , Vol. 434, pp. 255-260, 1996.
		Alman et al., "Fabrication of NiAl Intermetallic Reactors for Microtechnology-Based Energy Chemical Systems (MECS)," <i>Transactions of NAMRI/SME</i> , Volume XXIX, pp. 453-459, 2001.
		Alman et al., "Processing, Structure and Properties of Aluminum-Aluminide Layered Sheet Composites," Light Weight Alloys for Aerospace Applications III, The Minerals, Metals & Materials Society, pp. 531-544, 1995.
		Battezzati et al., "Solid State Reactions in Al/Ni Alternate Foils Induced by Cold Rolling and Annealing," <i>Acta Metallurgica Inc.</i> , <i>Acta mater.</i> , Volume 47, pp. 1901-1914, 1999.
		Benson et al., "Process Miniaturization- A Route To Total Environmental Acceptability?" <i>Trans. IChemE</i> , Vol. 71, Part A, pp. 160-168, 1993.
		Bower et al., "Aligned Wafer Bonding: A Key to Three Dimensional Microstructures," <i>Journal of Electronic Materials</i> , Vol. 20, pp. 383-387, 1991.
		Colgan, "A Review of Thin-Film Aluminide Formation," <i>Material Science Reports</i> 5, pp. I-44, North-Holland, January 1990.
		Cuta et al., "Fabrication and Testing of Micro-Channel Heat Exchangers," <i>SPIE Conf.</i> , Vol. 2640, pp. 152-160, 1995.
		d'Heurle, "Reactive Diffusion in a Prototype System: Nickel-Aluminum I: Non-Constant Diffusion Coefficient," <i>Thin Solid Films</i> , 215, pp. 19-25, 1992.
		Demura et al., "Fabrication of Ni ₃ Al Thin Foil by Cold-Rolling," <i>Intermetallics</i> 9, pp. 157-167, 2001.
↓		Derby et al., "Theoretical Model for Diffusion Bonding," <i>Metal Science</i> , Vol. 16, pp. 49-56, January 1982.

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* Examiner: Initial if reference considered, whether or not in conformance with MPEP 609. Draw line through cite if not in conformance and not considered. Include copy of this form with next communication to applicant.

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/N.D./		Dunford et al., "Diffusion Bonding of Al-Li Alloys," <i>Materials Science and Technology</i> , Vol. 8, pp. 385-398, May 1992.	
		Fischer et al., "Manufacturing of Aluminum Nitride Heat Exchangers by Ceramic Injection Molding," <i>Ceramic Engineering and Science Proceedings</i> , Volume 20, Issue 4, pp. 595-602, 1999.	
		Garmong et al., "Attainment of Full Interfacial Contact During Diffusion Bonding," <i>Metallurgical Transactions A</i> , Volume 6A, pp. 1269-1279, June 1975.	
		George et al., "Ordered Intermetallics," <i>Annu. Rev. Mater. Sci.</i> , Volume 24, pp. 409-451 1994.	
		Glatz et al., "Diffusion Bonding of Intermetallic Ti-47Al-2Cr-0.2Si Sheet Material and Mechanical Properties of Joints at Room Temperature and Elevated Temperatures," <i>Intermetallics</i> 5, pp. 415-423, September 1997.	
		Haas, "Further Development of MMW and SMMW Platelet Feed Horn Arrays," <i>Astronomical Society of the Pacific, Multi-Feed Systems for Radio Telescopes ASP Conference Series</i> , Vol. 75, pp. 99-105, 1995.	
		Hessel et al., "High Temperature HCN Generation in an Integrated Microreaction System," <i>Proc. IMRET3</i> , Frankfurt, Germany, pp. 151-164, April 1999.	
		Hill et al., "Modelling Solid-State Diffusion Bonding," <i>Acta metall.</i> , Vol. 37, No. 9, pp. 2425-2437, 1989.	
		Islam et al., "Effect of Surface Finish and Sheet Thickness on Isostatic Diffusion Bonding of Superplastic Ti-6Al-4V," <i>Materials Science and Technology</i> , Volume 13, pp. 1045-1050, December 1997.	
		Islam et al., "Isostatic Diffusion Bonding of a Microduplex Stainless Steel," <i>Scripta Materialia</i> , Vol. 38, No. 8, pp. 1187-1193, 1998.	
		Kao et al., "A Theoretical Analysis for the Formation of Periodic Layered Structure in Ternary Diffusion Couples Involving a Displacement Type of Reactions," <i>Acta metall. mater.</i> , Vol. 41, No. 12, pp. 3463-3472, 1993.	
▼		Koeneman et al., "Feasibility of Micro Power Supplies for MEMS," <i>Journal of MicroElectroMechanical Systems</i> , Vol. 6, No. 4, pp. 355-362, December 1997.	

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/N.D./		Ling et al., "Passive Alignment and its Application in Multi-level X-ray Lithography," <i>Materials and Device Characterization in Micromachining III, Proceedings of SPIE</i> , 4175, pp. 43-49, 2000.	
		Little, W. A., "Microminiature Refrigerators for Joule-Thomson Cooling of Electronic Chips and Devices," <i>Advances in Cryogenic Engineering</i> , Vol. 35, pp. 1325-1333, 1990.	
		Liu et al., "Ordered Intermetallic Alloys, Part I: Nickel and Iron Aluminides," <i>JOM</i> , pp. 38-44, May 1993.	
		Martin et al., "Microfabrication Methods for Microchannel Reactors and Separations Systems," <i>Chem. Eng. Comm.</i> , Vol. 173, pp. 245-254, 1999.	
		Michaelson et al., "The Early Stages of Solid-State Reactions in Ni/Al Multilayer Films," <i>J. Appl. Phys.</i> , Vol. 80, No. 12, pp. 6689-6698, December 1996.	
		Moore et al., "Diffusion Brazing NiAl with Self-Generated Filler Metal," Materials Research Society, <i>Mat. Res. Soc. Symp. Proc.</i> , Vol. 288, pp. 1173-1178, 1993.	
		Nakamura et al., "Research on Pressure Welding Conditions of Various Work Metals (Effects of Contact Pressure, Surface Expansion Ratio and Temperature)," <i>JSME International Journal, Series III</i> , Vol. 31, No. 3, pp. 612-617, 1988.	
		Nakao et al., "Diffusion Bonding of Intermetallic Compound TiAl," <i>ISIJ International</i> , Vol. 31, No. 10, pp. 1260-1266, 1991.	
		Orhan et al., "A New Model for Diffusion Bonding and its Application to Duplex Alloys," <i>Materials Science and Engineering A271</i> , pp. 458-468, 1999.	
		Paransky et al., "Kinetics of Two-Phase Layer Growth During Reactive Diffusion," <i>Materials Science and Engineering A270</i> , pp. 231-236, 1999.	
		Paul et al., "An Evaluation of Two Methods for Producing Intermetallic Microchannels," <i>Proceedings of IMEC</i> , pp. 261-266, ASME International Mechanical Engineering Congress of Exposition, New Orleans, Louisiana, November 17-22, 2002.	
▼		Peterson, "Size Limits for Regenerative Heat Engines," <i>Microscale Thermophysical Engineering</i> , 2:121-131, 1998.	

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/N.D./		Peterson, "Numerical Modeling of Conduction Effects in Microscale Counterflow Heat Exchangers," <i>Microscale Thermophysical Engineering</i> , 3:17-30, 1999.	
		Philibert, "Reactive Diffusion in Thin Films," <i>Applied Surface Sciences</i> , Vol. 53, North-Holland, pp. 74-81, 1991.	
		Pilling, "The Kinetics of Isostatic Diffusion Bonding in Superplastic Materials," <i>Materials Science and Engineering</i> 100, pp. 137-144, 1988.	
		Pilling, "On the Modeling of Diffusion Bonding in Materials: Superplastic Super Alpha-2," <i>Materials Science and Engineering</i> A205, pp. 72-78, 1996.	
		Raviprasad et al., "Layered Structures Produced by Rolling Dissimilar Metals," <i>Journal of Materials Science Letters</i> , Vol. 15, pp. 511-514, 1996.	
		Rode et al., "Self-Aligned Positioning of Microoptical Components by Precision Prismatic Grooves Impressed in Metal," <i>IEEE Journal of Microelectromechanical Systems</i> , Vol. 8, pp. 58-64, March 1999.	
		Spadaccini et al., "Development of a Catalytic Silicon Micro-Combustor for Hydrocarbon-Fueled Power Mems," <i>The Fifteenth IEEE International Conference on Micro Electro Mechanical Systems</i> , pp. 228-231, 2002.	
		Strum et al., "Liquid-Assisted Diffusion Bonding of NiAl," <i>Advanced Joining Technologies for New Materials II</i> , Conference Proceedings, pp. 76-88, March 1994.	
		Uenishi et al., "Joining of Intermetallic Compound TiAl by Using Al Filler Metal," <i>Zeitschrift fur Metallkunde</i> , Vol. 86, No. 4, pp. 270-274, 1995.	
		van Loo et al., "Solid State Diffusion and Reactive Phase Formation," <i>Solid State Ionics</i> , Vol. 95, pp. 95-106, 1997.	
		Wang et al., "Ni-Al ₂ O ₃ and Ni-Al Composite High-Aspect-Ratio Microstructures," <i>Materials and Device Characterization in Micromachining</i> , Vol. 3512, pp. 344-352, 1998.	
		Wu et al., "Superplastic Forming/Diffusion Bonding of Laser Surface Melted TiAl Intermetallic Alloy," <i>Scripta Materialia</i> , Vol. 45, pp. 895-899, 2001.	

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